

## CLAIMS

1. An electrolyte layer for a fuel cell comprising:

a compact substrate through which passes a gas supplied to

5 the electrochemical reaction;

a porous layer with fine pores that is formed on the substrate; and

an inorganic electrolyte supported in the pores.

10 2. An electrolyte layer for a fuel cell according to Claim 1, wherein

the substrate includes hydrogen-permeable, and

the electrolyte includes proton-conducting.

15 3. An electrolyte layer for a fuel cell according to Claim 2, wherein the electrolyte includes a solid acid.

4. An electrolyte layer for a fuel cell according to Claim 2, wherein the electrolyte includes a liquid acid.

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5. A fuel cell comprising:

an electrolyte layer for a fuel cell according to any one of Claims 1 through 4, and

an electrode adjacent disposed adjacent to the porous

25 layer, on the side opposite the substrate.

6. A method of manufacturing an electrolyte layer for a fuel cell, the method comprising:

preparing a compact substrate through which passes a gas supplied to the electrochemical reaction;

5 forming a porous layer with fine pores on the substrate;  
and

supporting an inorganic electrolyte in the pores.

7. A method of manufacturing an electrolyte layer for a  
10 fuel cell according to Claim 6, wherein  
the substrate includes hydrogen-permeable, and  
the electrolyte includes proton-conducting.

8. A method of manufacturing an electrolyte layer for a  
15 fuel cell according to Claim 7, wherein  
the electrolyte includes a solid acid, and  
the supporting the inorganic electrolyte includes  
introducing a solution of a solid acid into the pores of  
the porous layer, and  
20 drying the porous element containing the solution.